

SCOTCH PINE AS AN ASSOCIATE OF THE TESSELATED RATTLESNAKE PLANTAIN: The Tesselated Rattlesnake Plantain (*Goodyera tessellata* Lodd.) grows at only a few stations in Rhode Island, but recent observations have convinced me that it has a partiality for the duff of Scotch Pine (*Pinus sylvestris* L.).

In August 1972, acting on a tip from Lewis Carpenter of Hope, R.I., I visited Carolina State Forest in Washington County, where the year before, Carpenter had found countless hundreds of the orchid plants growing under Scotch Pine. Unfortunately, by the time I visited, the main grove had been clear-cut, leaving not one tree standing and not one orchid. Nevertheless, marginal stands of Scotch Pine did have the *Goodyera* in abundance. The landscape is rolling at this site, and the *Goodyera* does not grow on the droughty knolls even though they are clad with Scotch Pine, but rather on the cooler slopes, and especially on the flats under the introduced pine. There it abounds. The plants grow strictly under that pine, not under *Pinus strobus*, *Pinus resinosa* or *Pinus rigida*, which also occur interspersed at the location. *Goodyera tessellata* grows only under the immediate spread of Scotch Pine.

Goodyera pubescens Willd., on the other hand, which outnumbers *G. tessellata* ten thousand to one in this state, grows not under the Scotch Pine, but under mixed white pine and oak cover.

This clear-cut preference of the orchid set me to searching other stands of Scotch Pine for an orchid I had hitherto considered very scarce. At the two or three stations where I have seen it in its natural habitat, that is, under White Pine or in one case under Hemlock, it hardly numbers fifteen or twenty plants. Rhode Island is nearly the southern boundary of its range.

At two stations of Scotch Pine, one at Woody Hill Management Area, Washington County, and a small one-quarter acre stand in West Greenwich, Kent County, the orchid is absent. I would account for its absence by the

dry, upland conditions and the young stage of the pines there. However, at Foster, Providence County, under an acre of Scotch Pine known to have been set out before World War I, the orchid occurs in great quantity, perhaps two hundred on flat terrain where the water table is rather high. Scotch Pine here mingles with White Spruce (*Picea glauca* Moench), but the *Goodyera* shuns the spruce. It grows only under the spread of Scotch Pine.

The Scituate Reservoir Watershed in Providence County provides a good test for this observation, as it has multi-acre tracts of conifers, most of them plantations, with Red Pine, White Pine and White Spruce most abundant. On this watershed I investigated four Scotch Pine sites in company with the watershed manager, Hans Bergey, a professional forester. At the first stand, a mere handful of Scotch Pines mixed with other pines on a steep slope where competition was strong from bayberry and other bushes, the orchid did not appear. By contrast, at Clayville and at two North Scituate stands *Goodyera* flourishes, blooming the third week in July. Here, it was noted, the fallen Scotch Pine needles formed a mulch of about three inches depth above mineral soil. The trees had been set out in 1934-35, and the largest of them had diameters up to fifteen inches. At all three sites *Goodyera tessellata* showed the familiar partiality to the Scotch Pine, entirely shunning the other conifers.

If any conclusion can be drawn from these observations, it is that an introduced tree has encouraged the spread of a native species of orchid. It might prove worthwhile for students of botany to search other groves of Scotch Pine for the occurrence of the Tesselated Rattlesnake Plantain. Perhaps the tree has extended this orchid beyond its normal, northerly range.

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